MAX-PLANCK-GESELLSCHAFT

Outstanding!

Junior scientists
of the Max-Planck-Gesellschaft
June 2018, Heidelberg

Contents

Outstanding!

Each year, within the framework of its Annual Meeting, the Max-Planck-Gesellschaft honours a few truly outstanding performances of its PhD students and postdocs. This year marks the 40th anniversary of the Otto Hahn Medal, bestowed by the Max-Planck-Gesellschaft to honour its best junior scientists. Like very few others, Otto Hahn epitomised scientific excellence in his own life, alongside the struggle for progress on both a personal and a societal level. It was in his late twenties that Otto Hahn began his exceptionally fruitful cooperation with Lise Meitner, which led to the discovery of nuclear fission for which he received the Nobel Prize in Chemistry in 1944. As President he attended to the successful transformation of the Kaiser-Wilhelm-Gesellschaft into the Max-Planck-Gesellschaft starting in 1946.

Scientific excellence requires talent and commitment, creativity and courage. Today, our 1027 Otto Hahn Medal holders are engaged in research at the world's best universities and research institutions and hold responsibilities beyond the walls of science.

I am also delighted to see the creation of a new prize for postdocs, which shines a light on the potential for practical application to be found within basic research. The Hermann Neuhaus Prize is bestowed by the Max Planck Foundation in honour of the successful entrepreneur and generous benefactor Hermann Neuhaus. His life and career draw parallels with the biographies of excellent scientists: characterized by an untiring inventiveness, he always strove to give his best and to take an active part in shaping the future.

For me myself, receiving the Otto Hahn Medal in 1985 provided an incentive of very much the same kind, and I offer my personal congratulations to all of our award winners in this anniversary year!

Sincerely,

Prof. Dr. Martin Stratmann,
President of the Max-Planck-Gesellschaft

Impressions of
the last awards ceremony
2017 in Weimar

The Otto Hahn Medal

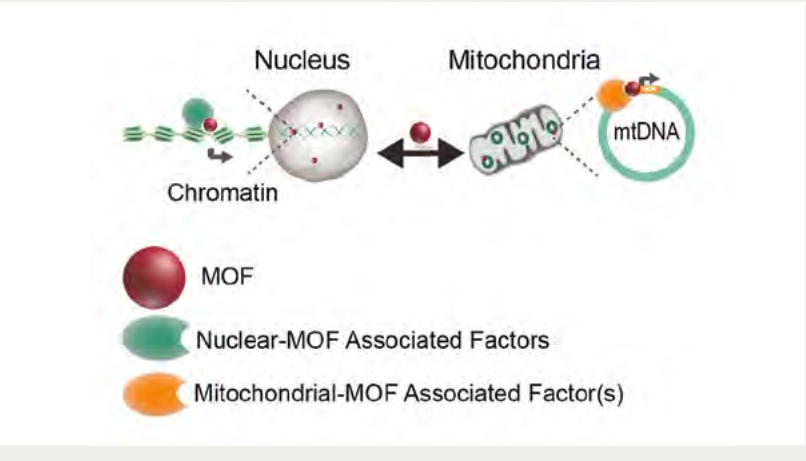
The Max-Planck-Gesellschaft has honoured up to 30 young scientists and researchers each year with the Otto Hahn Medal for outstanding scientific achievements since 1978. The prize is intended to motivate especially gifted junior scientists and researchers to pursue a future university or research career. The award is presented during the general meeting in the following year.

Biology
& Medicine
Section

Dr. rer. nat. Aindrila Chatterjee

for providing fundamental insights on a classical epigenetic enzyme MOF as a dual transcriptional regulator, acting both on nuclear and mitochondrial genomes

Max Planck Institute of Immunobiology and Epigenetics, Freiburg
Research field: molecular biology, biochemistry
Current activity: postdoctoral fellow at the European Molecular Biology Laboratory (EMBL), Heidelberg



My topic of interest

Mitochondria are the major hub of cellular metabolism. In my PhD, I identified unexpected regulatory functions of a key nuclear transcription regulator in mitochondria. This opens an avenue for research in understanding the crosstalk between cellular metabolism and nuclear gene expression.

My motivation

While retaining the same chemical structures and properties, key biomolecules can display different functions depending on the cellular context. The question of how, when and why they do so, fascinates me. Particularly, I would like to understand how metabolic enzymes modulate their function in different metabolic states of the cell.

My next professional station

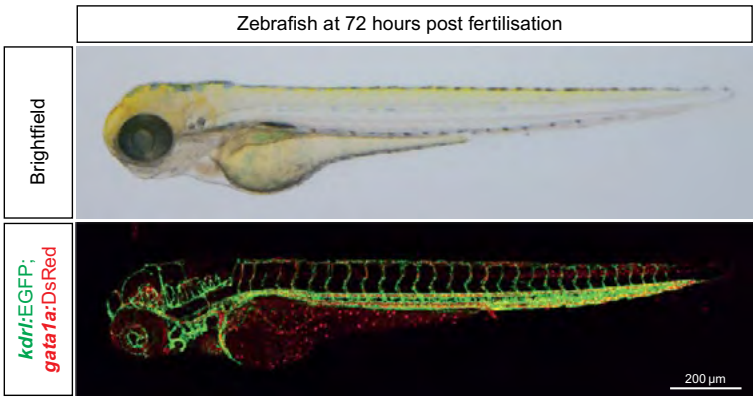
I am currently pursuing postdoctoral research in the lab of Prof. Matthias Hentze at the European Molecular Biology Laboratory (EMBL), Heidelberg.

Biology
& Medicine
Section

Dr. rer. nat. Claudia Gerri

for her work on the role of hypoxia and the HIF pathway in blood vessel development

Max Planck Institute for Heart and Lung Research, Bad Nauheim
Research field: developmental genetics, stem cell biology
Current activity: postdoctoral fellow at the Francis Crick Institute, London, UK



My topic of interest

My interest lies in understanding how cells progress in their specification and interact with each other in the developing embryo to form organs with complex functions and unique features.

My motivation

The ability of a fertilized egg to develop into a complex organism has always fascinated me. The embryo is an exceptional system for studying gene function and cellular processes in vivo. Cutting-edge technological advancements have broadened the tools available to developmental biologists to study embryogenesis in a more quantitative way and at a single-cell level, hardly imaginable only one decade ago. These new techniques have contributed to making developmental biology an increasingly thriving and exciting field to work in. In particular, my motivation is driven by my curiosity towards the molecular mechanisms underlying cell differentiation and the interaction among cells in a developing embryo. New findings in this field will not only greatly increase our understanding of how embryos grow, but have the potential to be transferred to pathological contexts, such as cancer and regenerative medicine.

My next professional station

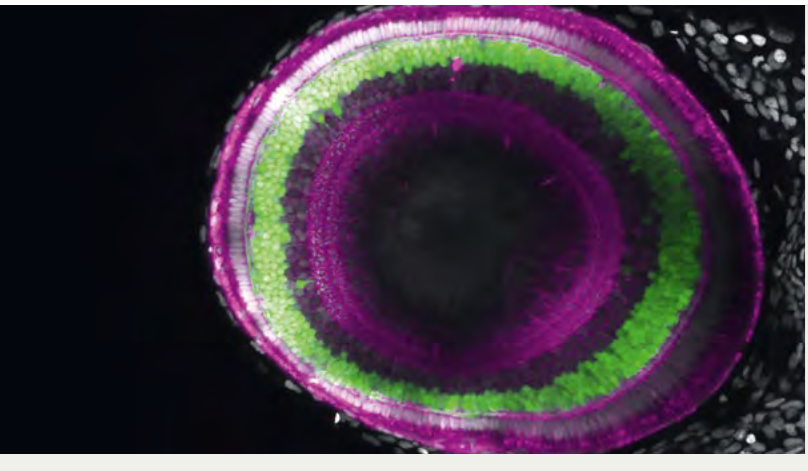
I am currently working as a postdoctoral researcher in the Human Embryo and Stem Cell Laboratory at the Francis Crick Institute, London. I am studying the cellular and molecular mechanisms that regulate the first lineage specification event in human preimplantation embryos.

Biology
& Medicine
Section

Jaroslav Icha, PhD

for outstanding new insights into neuronal migration and lamination in the developing vertebrate retina using innovative microscopy approaches

Max Planck Institute of Molecular Cell Biology and Genetics, Dresden
Research field: cell biology, developmental biology
Current activity: postdoctoral fellow at the Turku Centre for Biotechnology, Turku, Finland



My topic of interest

With my research I would like to contribute to our understanding of development of nervous tissues. We still have limited knowledge of how the brain or the retina form by the interplay of simultaneous differentiation, migration, and morphogenesis of immature neurons. When these processes are out of sync, it can give rise to neurodevelopmental disorders like intellectual disability, schizophrenia, or autism.

My motivation

I enjoy the search for the unknown and the situation of being the first person in the world to learn some secret of nature. Fortunately, in biology there is still so much to be discovered for all of us. On a daily basis, I am often driven by introducing new methods and optimizing them because it is often the technological advances that allow us to revisit the age-old questions and gain much deeper understanding of the phenomena.

My next professional station

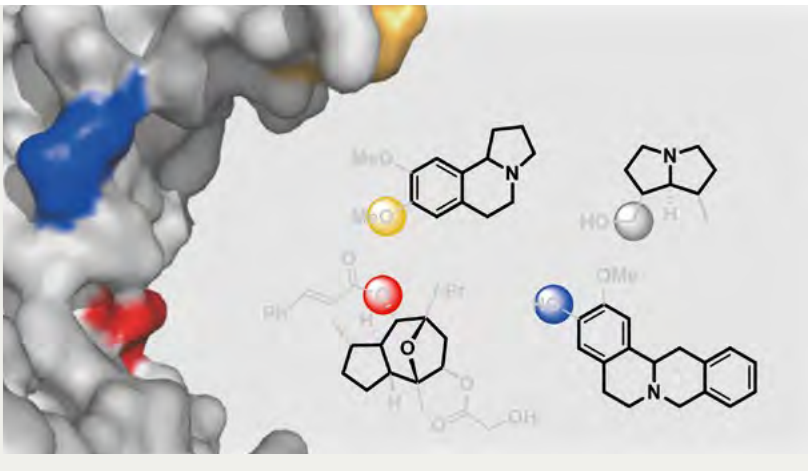
I have started a postdoc with Prof. Johanna Ivaska in Turku. I am working in the field of cell adhesion research, more specifically on the question of how cells regulate the amount of receptors for extracellular matrix called integrins on their surface. This has important implications for cell migration and tissue homeostasis both in health and in the context of cancer.

Biology
& Medicine
Section

Dr. rer. nat. Zhi-Jun Jia

for the synthesis of new natural product-inspired compound collections, and a new, powerful and broadly variable diene-ligand class for enantioselective C-H activation

Max Planck Institute of Molecular Physiology, Dortmund
Research field: chemical biology
Current activity: postdoctoral fellow at the Department of Chemical Engineering, California Institute of Technology, USA



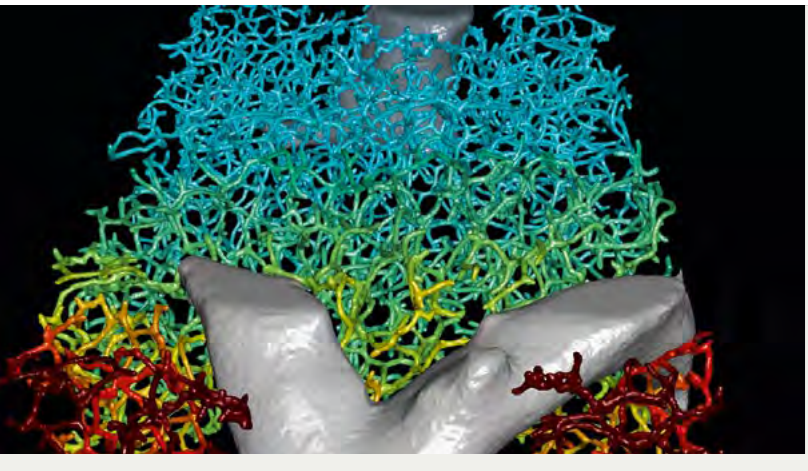
My topic of interest	Small bioactive molecules can specifically influence biological processes and provide treatment for diseases. In my research, I aim to synthesize small molecule collections inspired by bioactive natural products in a rapid and efficient manner, and further use them in the study of biological phenomena.
My motivation	Influenced by my father as a carpenter, I am always enthusiastic about building new things in my own way. In my research, it gives me great pleasure to construct molecule scaffolds by developing new chemical methods and strategies. Furthermore, it's incredibly exciting to understand how the architecture of small molecules delivers specific function in biological processes.
My next professional station	I just started my postdoctoral research at Caltech in the US, with a focus on biocatalysis and synthetic biology. Long term, I would like to build up my own research group.

Biology
& Medicine
Section

Dr. rer. nat. Kirstin Meyer

for her multi-scale model of bile fluid dynamic in the liver and the discovery of the apical surface of hepatocytes as a mechano-sensor regulating organ size

Max Planck Institute of Molecular Cell Biology and Genetics, Dresden
Research field: cell biology
Current activity: postdoctoral fellow at the University of California San Francisco (UCSF), USA



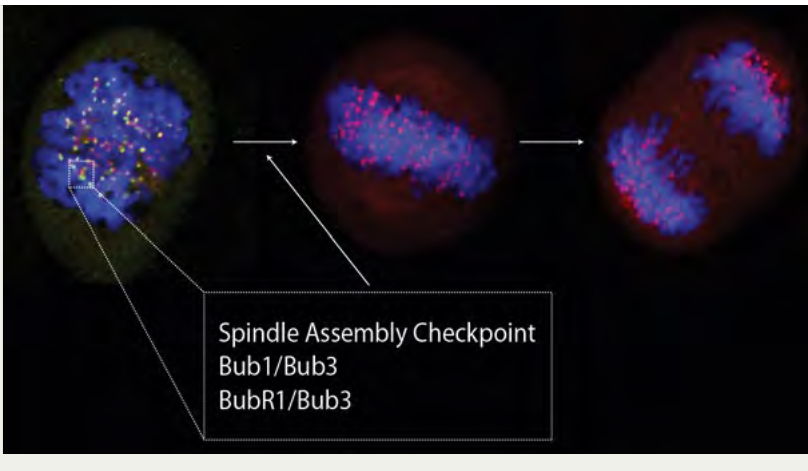
My topic of interest	Physical forces play a fundamental role in cellular decision-making processes during morphogenesis. My goal is to understand how cells detect and convert these into biochemical signals for proper regulation of gene expression and cell behaviour.
My motivation	What drives me is curiosity. Science provides a creative environment where I can explore, understand, teach and discover fundamental principles of life, every day. It challenges me and brings me to my own limits. I find this very rewarding.
My next professional station	I am currently working as a postdoc at the University of California, San Francisco. My research goal is to understand the reciprocal regulation of mechanics and cellular decision-making processes by probing the logic of actin-dependent mechanotransduction using optogenetics.

Biology
& Medicine
Section

Dr. rer. nat. Katharina Overlack

for investigations of the role of Bub1, BubR1, and Bub3 proteins in the control of the mitotic checkpoint

Max Planck Institute of Molecular Physiology, Dortmund
Research field: molecular cell biology
Current activity: research associate at the Institute for Quality and Efficiency in Health Care, Cologne



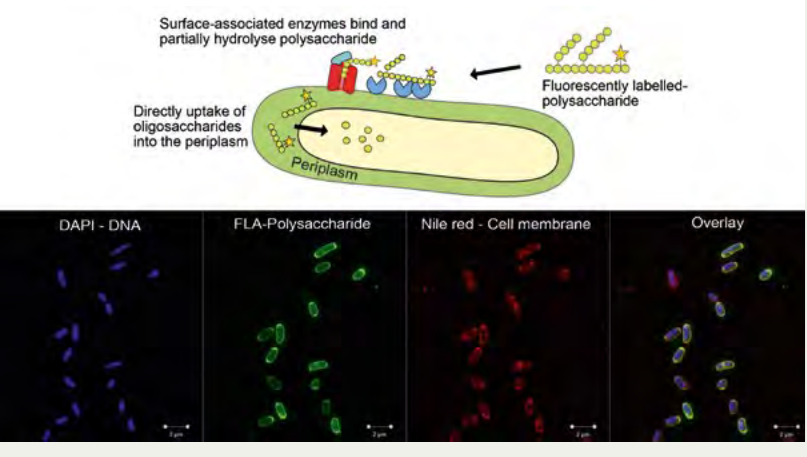
My topic of interest	With my research I would like to understand how essential checkpoints during mitosis ensure the correct distribution of chromosomes into two daughter cells.
My motivation	The strongest motivation for my work is my curiosity. I want to understand the function of biological processes in detail in order to also gain a better understanding of what goes wrong in these processes in human diseases.
My next professional station	I now work as a research associate at the Institute for Quality and Efficiency in Health Care in Cologne.

Biology
& Medicine
Section

Dr. rer. nat. Greta Reintjes

for her taxonomic and functional studies of polysaccharide utilization by marine bacteria

Max Planck Institute for Marine Microbiology, Bremen
Research field: marine microbiology
Current activity: postdoctoral fellow at the Max Planck Institute for Marine Microbiology, Bremen



My topic of interest

In recent years the importance of microbiomes, the community of microorganisms that colonize an ecosystem, has come to light. It is my intention to increase our understanding of the structure and function of these microbiomes, with a specific focus on the role which microorganisms play in local and global biochemical cycling. I would like to achieve this using biochemical systems-based approaches and coupling these to microbial genetic approaches to more accurately predict the extent of microbial activity in microbiomes.

My motivation

There are many reasons to be a scientist but what motivates me is curiosity and my desire to unravel natural patterns and understand their biological meaning.

My next professional station

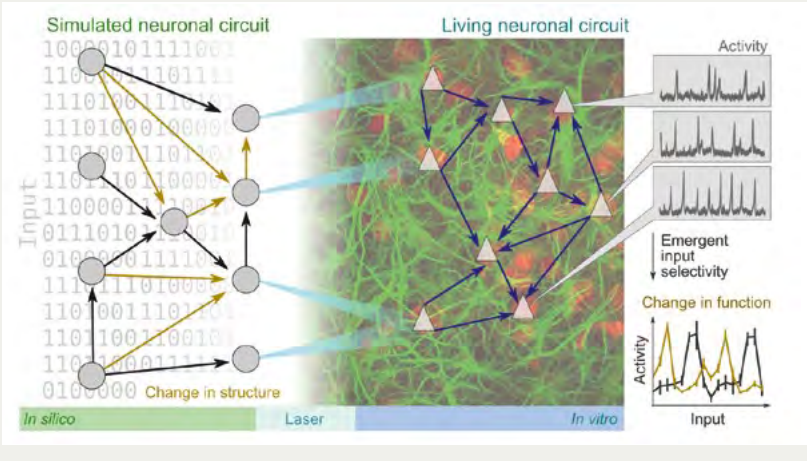
I will remain at the Max Planck Institute in Bremen for a short period and then begin an international postdoc in Canada. My future research will focus on the human and ruminal microbiomes. In the long term, I would like to establish my own research group.

Biology
& Medicine
Section

Dr. rer. nat. Manuel Schottdorf

for pioneering structure-function studies with neuronal circuits

Max Planck Institute for Experimental Medicine and Max Planck Institute for Dynamics and Self-Organization, Göttingen
Research field: neuroscience and physics
Current activity: postdoctoral fellow at the Max Planck Institute for Dynamics and Self-Organization, Göttingen



My topic of interest

The coordinated activity of nerve cells in neuronal circuits is the foundation for information processing in the nervous system. I would like to identify principles which allow us a conceptual insight into the structure of these circuits and which elucidate how these circuits give rise to behaviourally relevant functions.

My motivation

I feel that the success of experimental structure-function studies in biology is transferable to neuronal circuits. The de novo construction and assessment of neuronal hybrid circuits composed of biological and electronic components allows such studies and makes the relation between structure and function of a neuronal circuit experimentally accessible.

My next professional station

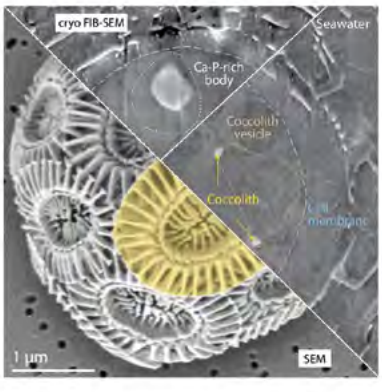
I am currently working as a postdoctoral researcher in Göttingen before joining the Princeton Neuroscience Institute in the United States this summer.

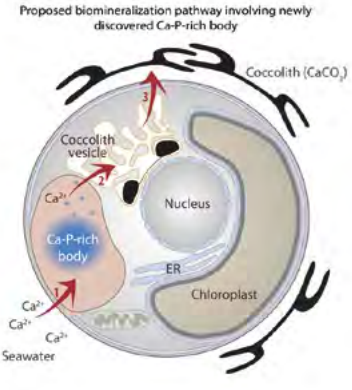
Biology
& Medicine
Section

Dr. rer. nat. Sanja Sviben

for the investigation of the mechanisms and the machinery underlying the biomineralization of calcium carbonate in coccolithophorid algae

Max Planck Institute of Molecular Plant Physiology, Potsdam
Research field: cell biology, materials science in the living cell
Current activity: postdoctoral fellow at the Max Planck Institute of Colloids and Interfaces, Potsdam





My topic of interest

What interests me is the deposition of biological materials in natural systems. The intricate shape and hierarchical structure of these materials (e.g. shape of calcite minerals in coccolithophores, cuticle structure in arthropods) are thought to be under tight cellular control and I am trying to understand mechanisms that cells employ to control the deposition process.

My motivation

What drives my journey in science is curiosity, the constant learning process and above all the excitement of being able to visualize and understand cellular processes on a micro and nano scale using state-of-the-art techniques. Utilizing techniques developed in several different scientific disciplines (biology, chemistry, physics and materials science) motivates me to understand nature from many different angles and helps me in finding creativity to design further experiments and answer scientific questions that interest me.

My next professional station

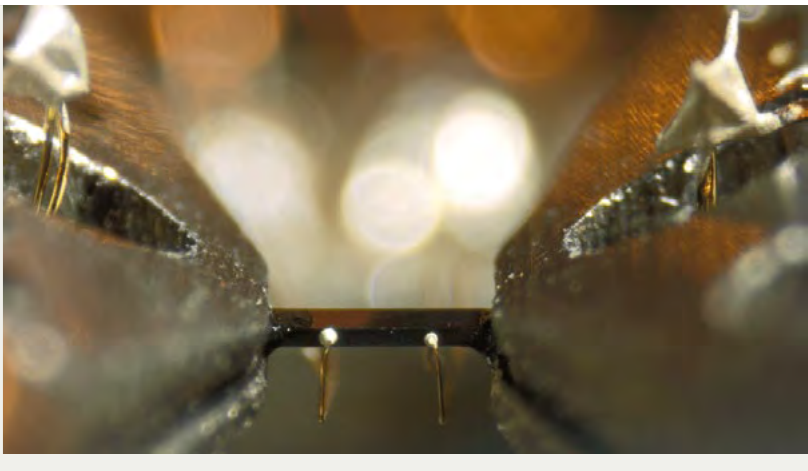
I am currently working as a postdoc in research groups of Dr. Yael Politi and Dr. Luca Bertinetti at the Max Planck Institute of Colloids and Interfaces in Potsdam. I am investigating mechanisms of chitin fibre alignment in the arthropod cuticle. In the future, I would like to continue my scientific career and build up my own research group.

Chemistry, Physics & Technology Section

Dr. Mark Barber

for investigations into the response of unconventional superconductors and magnets to the application of large levels of uniaxial pressure

Max Planck Institute for Chemical Physics of Solids, Dresden
Research field: strongly correlated electron systems
Current activity: postdoctoral fellow at the Max Planck Institute for Chemical Physics of Solids, Dresden



My topic of interest

In certain material classes, strong electronic correlations can lead to complex emergent phenomena such as superconductivity and different forms of magnetism which cannot be explained by conventional theories. In my research, I work on perturbing these systems with newly developed clean tuning parameters and investigate changes in their physical properties, which can help reveal underlying mechanisms for their novel behaviour.

My motivation

In the field of strongly correlated electron systems many open questions remain and discoveries can still be made in an in-house laboratory. Designing and building new bespoke equipment allows us to look at these materials from a new perspective and can reveal important insights into interesting physics problems. I am motivated to advance our understanding of the field by pushing the boundaries of current measurement techniques.

My next professional station

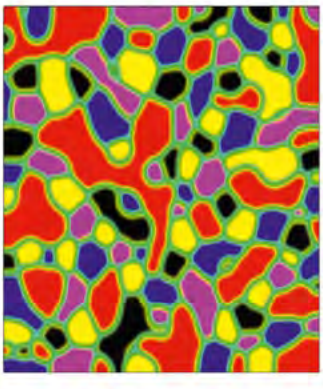
I am continuing my research at the MPI CPfS working on developing new higher precision uniaxial pressure devices which I will use to investigate high-temperature copper-based superconductors.

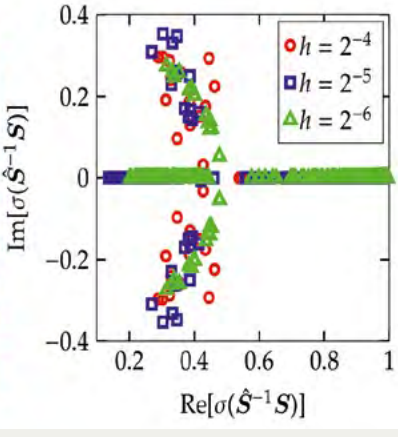
Chemistry, Physics & Technology Section

Dr. rer. nat. Jessica Bosch

for her work on the development of fast and robust solvers for phase field problems from many application areas

Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg
Research field: numerical linear algebra, preconditioning
Current activity: postdoctoral fellow at the Department of Computer Science, University of British Columbia, Vancouver, Canada





My topic of interest

I am developing efficient and robust numerical techniques to solve equations that mainly come from the modelling of real world phenomena. These include the process of phase separation and coarsening that appears in materials science or the simulation of fluid dynamics and tumour growth.

My motivation

The ubiquity, elegance, and complexity of mathematics fascinates me. In addition, research is full of surprises: On the one hand, there are the moments of wonder and joy when you have discovered complex connections. On the other hand, there are the hurdles and challenges that need to be overcome.

My next professional station

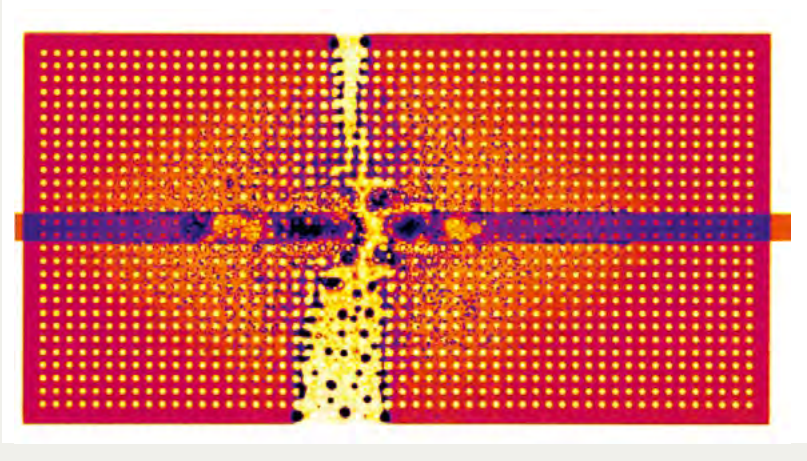
I plan to stay at the University of British Columbia in Canada to assist the Faculty of Science with coordinating courses and events, writing grants, or implementing research-based instructional practices for course transformations. I aim to support and advise science students and postdocs in their career development, try to identify the need for updating existing programmes or initiating new ones, and take action.

Chemistry, Physics & Technology Section

Dr. rer. nat Joachim Gräfe

for fundamental and innovative research in the field of magnonics by highly spatial and time-resolved magnetic x-ray imaging of nanoscale magnetization dynamics

Max Planck Institute for Intelligent Systems, Stuttgart
Research field: nanomagnetism
Current activity: nano magnonics group leader at the Max Planck Institute for Intelligent Systems, Stuttgart



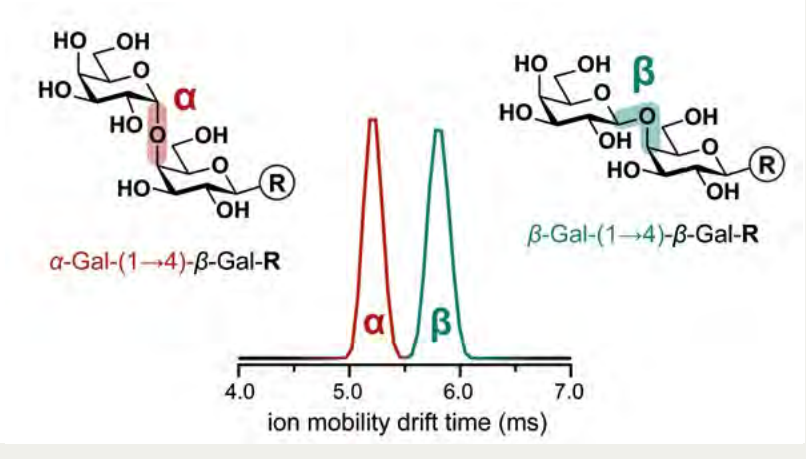
My topic of interest	I am interested in how magnons, i.e. the fundamental excitations in magnets, are excited and influenced. I want to understand these wave phenomena and build a foundation for future technological applications.
My motivation	Modern nano structuring allows the generation of magnons and their targeted manipulation on the length scale of their wavelength, that we can directly observe with high-resolution x-ray microscopy. This enables intuitive access to these quantum phenomena and allows us to understand them. These results are demonstrative and fascinating fundamental physics, while at the same time being of great technological potential as current-free excitation.
My next professional station	To continue my intensive scientific work in the area of nano magnetism would be a fantastic goal. I hope to extend the current possibilities and to realize my new ideas.

Chemistry, Physics & Technology Section

Dr. rer. nat. Johanna Hofmann

for investigations on the structural analysis of complex oligosaccharides and glycopeptides using ion mobility-mass spectrometry

Fritz Haber Institute of the Max Planck Society, Berlin
Research field: analytical chemistry
Current activity: postdoctoral fellow at the Fritz Haber Institute of the Max Planck Society, Berlin



My topic of interest

Carbohydrates are essential building blocks of biological systems that have numerous functions, ranging from being an energy supply to participating in cell-cell recognition. The aim of my research is to develop novel methods to elucidate the complex structure of carbohydrates and their conjugates.

My motivation

I find it fascinating how little is still known about certain processes in biology. My motivation is to unravel some of these secrets and to develop novel techniques that can be applied in a variety of scientific fields as well as industry.

My next professional station

Currently I work as a postdoctoral fellow at the Fritz Haber Institute in a new group and I am expanding my knowledge in the field of physical chemistry. I have not yet decided on my future career path.

Chemistry, Physics & Technology Section

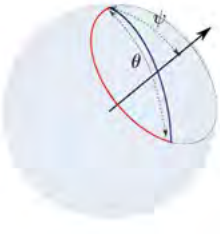
Dr. rer. nat. Eslam Khalaf

for the theoretical analysis of disorder effects on electronic transport in topological quantum wires

Max Planck Institute for Solid State Research, Stuttgart
Research field: theoretical condensed matter physics
Current activity: postdoctoral fellow at the Max Planck Institute for Solid State Research, Stuttgart

$$\langle F(Q)\rangle = \int_{\mathcal{G}} dT\,(\mathrm{sdet}\,T)^{\pm m} F(T^{-1}\Lambda T)\exp\left[-\frac{\kappa}{2}\mathrm{str}(T+T^{-1})\right]$$

H	"E"	Q_{FF}	d=1	d=2
A	AIII	$\mathrm{U}(2n)/\mathrm{U}(n)\times\mathrm{U}(n)$	0	$\mathbb{Z}$
AIII	A	$\mathrm{U}(n)\times\mathrm{U}(n)/\mathrm{U}(n)$	$\mathbb{Z}$	0
AI	CI	$\mathrm{Sp}(4n)/\mathrm{Sp}(2n)\times\mathrm{Sp}(2n)$	0	0
BDI	AI	$\mathrm{U}(2n)/\mathrm{Sp}(2n)$	$\mathbb{Z}$	0
D	BDI	$\mathrm{O}(2n)/\mathrm{U}(n)$	$\mathbb{Z}_2$	$\mathbb{Z}$
DIII	D	$\mathrm{O}(n)\times\mathrm{O}(n)/\mathrm{O}(n)$	$\mathbb{Z}_2$	$\mathbb{Z}_2$
AII	DIII	$\mathrm{O}(2n)/\mathrm{O}(n)\times\mathrm{O}(n)$	0	$\mathbb{Z}_2$
CII	AII	$\mathrm{U}(n)/\mathrm{O}(n)$	$\mathbb{Z}$	0
C	CII	$\mathrm{Sp}(2n)/\mathrm{U}(n)$	0	$\mathbb{Z}$
CI	C	$\mathrm{Sp}(2n)\times\mathrm{Sp}(2n)/\mathrm{Sp}(2n)$	0	0



My topic of interest

In my previous work, I have investigated the interplay between topology, disorder, and quantum interference and the possible experimental signatures of this interplay. I plan to continue exploring new topological phases and their possible experimental signatures.

My motivation

Topological materials have been one of the most intensely studied fields in condensed matter physics due to their immense potential in reshaping several fields of technology such as quantum computing and communication as well as spintronics. In addition, they have been of great theoretical value in demonstrating novel unusual types of behaviour. I am motivated by the desire to explore new types of topological phases and investigate their exotic phenomenology.

My next professional station

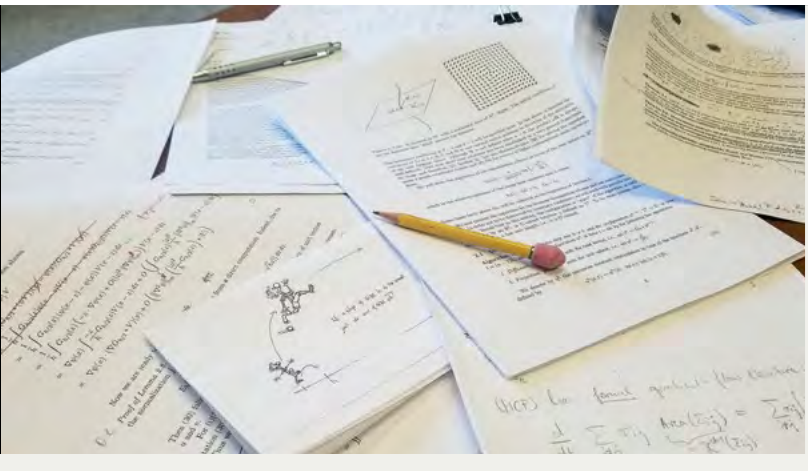
I am moving to Harvard for a three-year postdoc where I will expand on my work on transport in topological systems and investigate other exotic properties of topological materials.

Chemistry,
Physics &
Technology
Section

Dr. rer. nat. Tim Laux

for a highly original convergence proof of a numerical scheme for grain growth

Max Planck Institute for Mathematics in the Sciences, Leipzig
Research field: mathematical analysis of geometric differential equations
Current activity: Morrey Visiting Assistant Professor at the University of California, Berkeley, USA



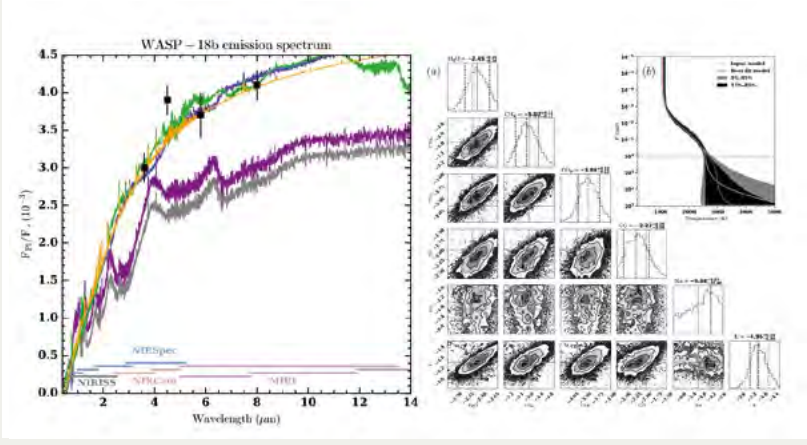
My topic of interest	Mean curvature flow is a geometric evolution equation which models in particular the coarsening of the grain structure in polycrystals. The mathematical structure of the equation as a steepest descent in an energy landscape facilitates the analysis and development of numerical algorithms.
My motivation	I find it fascinating when mathematics brings clarity into complex problems with direct applications. Mathematical research is diverse and requires, among other things, creativity, concentration and patience. A particularly stimulating facet of research is the international exchange of ideas and the open nature of collaboration.
My next professional station	Currently, I am researching and teaching at the University of California, Berkeley. I am mostly concentrating on problems in geometric analysis, in particular curvature-driven flows and their variational character. In the near future I will be looking for my next station in the USA or in Europe.

Chemistry,
Physics &
Technology
Section

Dr. rer. nat. Paul Mollière

for the comprehensive investigation of the structure of atmospheres of extra-solar planets and the analysis of their spectra

Max Planck Institute for Astronomy, Heidelberg
Research field: astronomy
Current activity: postdoctoral fellow at the Leiden Observatory, the Netherlands



My topic of interest

What is the composition and structure of exoplanet atmospheres? What does knowing their composition teach us about the formation history of these planets?

My motivation

I am motivated by thinking and learning about the properties of worlds far away from our Solar System. From Solar System exploration we know how different and beautiful given planets can be. Exoplanets exist in even greater variation, and it is fascinating to study these objects that nature has left us to discover.

My next professional station

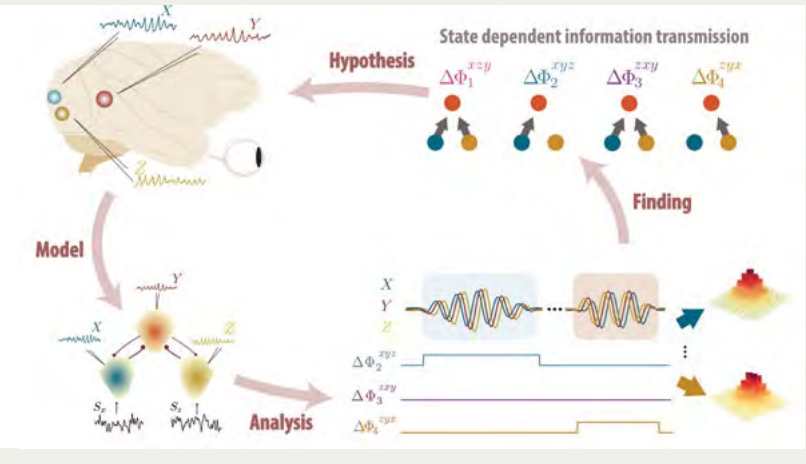
I am currently doing my first postdoc. After this I would like continue to work in science.

Chemistry, Physics & Technology Section

Dr. rer. nat. Agostina Palmigiano

for uncovering the dynamical principles of flexible information routing in cortical networks

Max Planck Institute for Dynamics and Self-Organization, Göttingen
Research field: theoretical neuroscience
Current activity: postdoctoral fellow at the Center for Theoretical Neuroscience, Zuckerman Institute, Columbia, USA



My topic of interest

One of the big questions in contemporary neuroscience is how neuronal activity patterns reconfigure dynamically to selectively regulate information transmission between distant circuits. During my PhD research I set out to understand theoretically the mechanisms underlying fast and flexible information routing by analyzing the role of collective oscillatory activity in signal gating and in shaping the dynamical stability of neuronal circuit models.

My motivation

I am excited about the new challenges that biological systems pose to the hard sciences, about how increasingly interdisciplinary the neuroscience field needs to become to achieve its goal and about the road ahead in the search for artificial intelligence. In my research, I am keen on developing tractable models and theoretical approaches that inform and feed from experimental research to ultimately refine our understanding of the mechanisms underlying brain function.

My next professional station

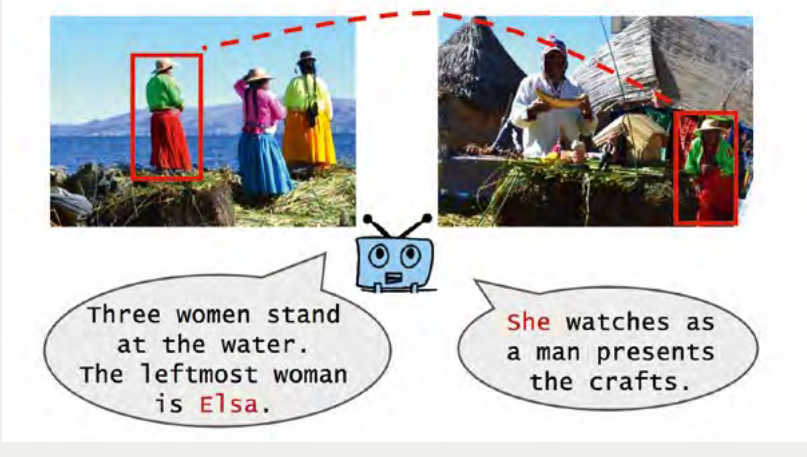
I am currently a postdoc in the Theory Center at Columbia University, and I could not imagine a place better suited for my current interests. In the long term, I would like to come back to Germany to continue doing research in neurophysics.

Chemistry, Physics & Technology Section

Dr. rer. nat. Anna Rohrbach

for highly innovative work both in generating automatic video description with natural language and visual grounding of language expressions in visual data

Max Planck Institute for Informatics, Saarbrücken
Research field: computer vision and natural language understanding
Current activity: postdoctoral fellow at the University of California, Berkeley, USA



My topic of interest

How can we teach intelligent machines to communicate with us about the visual world using natural language? How can we build interpretable and unbiased models which can describe what they see, understand what we ask, and explain their answers?

My motivation

I am motivated by seeing how new technology can positively impact the lives of people around the world. One important application of my work is making visual content accessible to the visually impaired. Another direction I am very excited about is new emerging tasks, where intelligent machines are also required to act, which brings us closer to real-world scenarios.

My next professional station

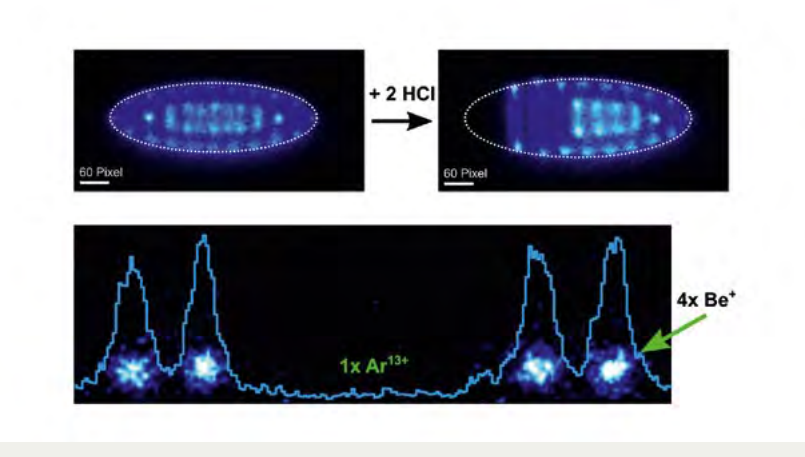
After finishing my PhD I joined UC Berkeley as a postdoctoral researcher. I am continuing my work at the intersection of vision and language, and specifically, I focus on how to make machine learning models more interpretable and fair in their predictions.

Chemistry, Physics & Technology Section

Dr. rer. nat. Lisa Schmöger

for her ground-breaking work on sympathetic laser cooling and crystallization of highly charged ions, enabling their deployment in optical clocks for the first time

Max Planck Institute for Nuclear Physics, Heidelberg
Research field: experimental atomic physics, highly charged ions, optical clocks
Current activity: system engineer at Physik Instrumente GmbH & Co. KG, Karlsruhe



My topic of interest

Are fundamental constants actually constant in time and space? Possible drifts are expected to be so small that only extremely sensitive sensors which are immune to their environment can be used for detection. In addition, those sensors have to be read out with ultra-high precision. Specific electronic transitions in highly charged ions (HCIs) have been proposed as suitable candidates. Realizing an atomic clock based on such a transition as a pacemaker would allow for the required readout precision. My topic of interest has been the Coulomb-crystallization of HCIs in a cryogenic Paul trap as a prerequisite for the development of an HCI clock.

My motivation

Research on highly charged ions for investigating possible drifts of fundamental constants is fascinating because it combines theoretical challenges with the development of methods to refine these theoretical predictions experimentally. Building atomic clocks is not only a worthwhile technical challenge, it also leads to a universal tool which can be used for low-energy searches for physics beyond the Standard Model as well as for the realization of novel frequency standards in the VUV wavelength range. This unique requirement for teamwork and long-term planning can be very rewarding.

My next professional station

In April 2018, I started working as a system engineer at Physik Instrumente GmbH & Co. KG in Karlsruhe.

Human Sciences Section

Dr. rer. pol.
Ana Carolina Alfinito Vieira

for research on the contribution of the long-term dynamics of social mobilization to the institutional recognition of the rights of indigenous peoples in Brazil

Max Planck Institute for the Study of Societies, Cologne
Research field: sociology
Current activity: associate researcher at the University of São Paulo and the Brazilian Center of Analysis and Planning (CEBRAP), São Paulo, Brazil

My topic of interest	Through my research, I sought to understand how it is that social movements contribute to long-term and incremental processes of institutional change. My focus was on how the Pro-Indigenous Movement in Brazil affected national and local institutions of land tenure and citizenship through multi-level and inter-sectoral mobilization processes that spanned nearly five decades.
My motivation	I am motivated by the desire to understand how ordinary people and communities, situated outside of the powerful political and economic institutions of society, can leverage resources to affect in a meaningful manner the norms and values that structure social order. The endless creativity, resilience and strategy of progressive activists inspire me both personally and academically. They should inspire all of us who strive to construct more inclusive and democratic institutions.
My next professional station	I have not yet planned my next professional station.

Human Sciences Section

Dr. phil. Mattea Dallacker

for research on the social determinants of the obesity crisis and parents' influence on their childrens' eating behaviour

Max Planck Institute for Human Development, Berlin
Research field: health psychology
Current activity: postdoctoral fellow at the Max Planck Institute for Human Development, Berlin

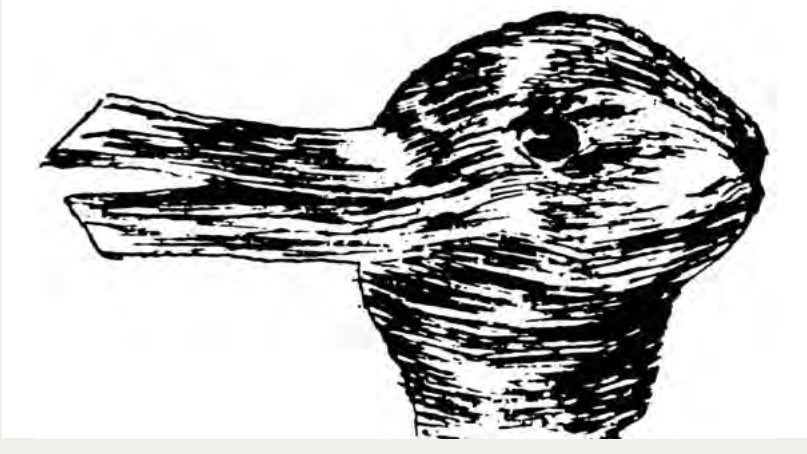
My topic of interest	How do parents influence the eating behaviour and body weight of their children?
My motivation	My research addresses one of the major global health crises of our times: the global obesity epidemic. Current psychological approaches to prevent weight gain have focused almost exclusively on individual factors and less attention has been paid to social aspects of eating. My research addresses this gap. My goal is to identify social influences of eating behaviour in children to make future obesity interventions more effective.
My next professional station	I am currently working as a postdoc at the Max Planck Institute for Human Development.

Human Sciences Section

Dr. Jolien Cornélie Francken

for work on the influence of language on fundamental aspects of visual perception

Max Planck Institute for Psycholinguistics, Nijmegen, the Netherlands
Research field: cognitive neuroscience, neurophilosophy
Current activity: postdoctoral fellow at the University of Amsterdam, the Netherlands



My topic of interest

How do we see the world around us? Does language change what we perceive? What are the cognitive and neural mechanisms supporting interactions between language and visual perception?

My motivation

During my PhD research, I aimed to connect two relatively distinct disciplines: psycholinguistics and cognitive neuroscience of visual perception. In general, I strongly believe that innovative science requires integrating different perspectives. My ambition is to adopt such an interdisciplinary approach by using philosophical methods to improve the interpretation and translation of cognitive neuroscience findings.

My next professional station

Currently, I work as a postdoctoral researcher at the University of Amsterdam in the field of neurophilosophy, and I teach my students how to become an interdisciplinary researcher.

Human Sciences Section

Dr. jur. Insa Stefanie Jarass

for her work on the harmonization of private law

Max Planck Institute for European Legal History, Frankfurt a. M.
Research field: unification of law, transnational law, international private law and civil procedure, comparative law
Current activity: articled legal clerk at the Regional Court of Frankfurt a. M.

My topic of interest

The mostly national fragmentation of commercial law has always been viewed as a barrier to international trade. Besides governments' attempts to create legal unity through international treaties, private players such as the International Chamber of Commerce in Paris have also committed to trying to achieve the unification of law in the area of international commerce by creating their own non-state rules and regulations. Seeking to identify the ways in which such non-state regulations function, my work addresses the question of which underlying conditions they require in order to achieve their goal of unifying the law in practice.

My motivation

Since working on the collaborative research project 'Transformation of the State' at the University of Bremen, I have been fascinated by the phenomenon of transnationalization of the law. I want to contribute to making this phenomenon tangible from the perspective of legal doctrine.

My next professional station

Following my legal clerkship I will begin my extended post-doctoral qualification period in May 2018 at the Max Planck Institute for European Legal History as is required for a full university professorship.

Human Sciences Section

Dr. Frederic Jasper Kunstreich

for the study of the social and legal process of 19th century Germany

Max Planck Institute for European Legal History, Frankfurt a. M.
Research field: history of commercial law, economic and social history
Current activity: postdoctoral fellow at the Max Planck Institute for European Legal History, Frankfurt a. M.

My topic of interest

In my dissertation, I focus on the dilemma between collective and individual interests in bankruptcy. At the outset, I wanted to know how and why different lawmakers solved this dilemma differently. I therefore compared a number of bankruptcy regimes in different German polities prior to 1871. Bankruptcy regimes were originally operated by local market institutions and local elites. However, they were not able to respond adequately to the industrial revolution and market integration. Designing new rules for economic failure ultimately became an element in the formation of the new nation state.

My motivation

I would like to know how society works; why is it that we do not erupt in violent conflict more often? To this end I focus on the intersection of history, law, and economics. I firmly believe that one cannot be understood without the others. That entails a variety of approaches, ranging from hermeneutics to quantitative economics.

My next professional station

I am currently working as a postdoc at the MPI for European Legal History and am coordinating the research project on the history of legal scholarship within the Max Planck Society. In this role I also participate as a visiting researcher in the research programme on the history of the Max Planck Society, located at the MPI for the History of Science in Berlin.

Human Sciences Section

Dr. jur. Dr. rer. pol. Pascal Langenbach

for the experimental proof that being heard before the issue of an administrative ruling increases acceptance

Max Planck Institute for Research on Collective Goods, Bonn
Research field: public law, empirical legal studies, experimental law and economics
Current activity: articled legal clerk at the Higher Regional Court of Cologne

My topic of interest

Generally speaking, my work focuses on the question of how procedures of rule generation and of rule application affect these rules and the behaviour of the people subject to these rules. In particular, in my dissertation I studied the empirical consequences and normative aims of the right to a hearing in administrative procedures. From that I drew conclusions for an acceptance-enhancing design of German administrative procedural law.

My motivation

What does the law aim at? What are its effects? How can its goals be accomplished? I am interested in the connections between the normative goals, the empirical effects, and the doctrinal application of legal rules. At many times, this requires an interdisciplinary approach. As such, I learn new things every day, about the law, about science, and about life.

My next professional station

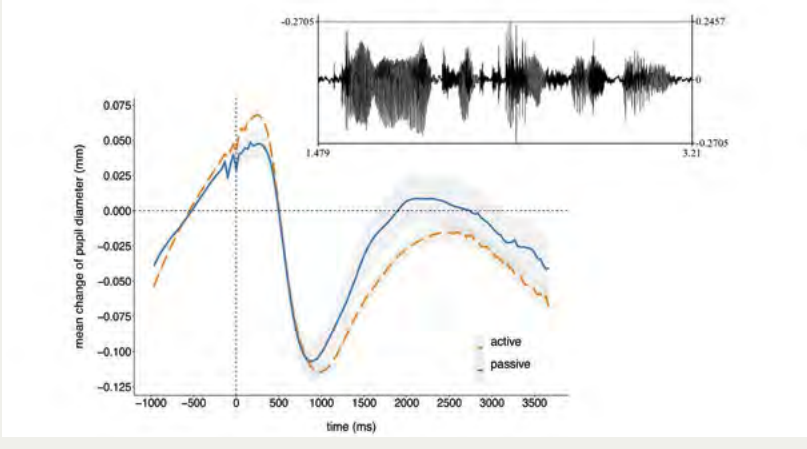
Starting in August, I will work on these and other questions as a postdoctoral fellow at the Max Planck Institute for Research on Collective Goods.

Human Sciences Section

Dr. Sebastian Sauppe

for his study that explores the cognitive processing of a verb-first language (Tagalog) using both comprehension and production eye-tracking measures

Max Planck Institute for Psycholinguistics, Nijmegen, the Netherlands
Research field: psycholinguistics
Current activity: postdoctoral fellow at the Department of Comparative Linguistics, University of Zurich, Switzerland



My topic of interest

There are more than 7000 languages currently spoken and each of them is different. What impact do grammatical differences have on how we produce and understand sentences? Focusing on Tagalog (spoken in the Philippines) and German, my dissertation explored how the way languages order words and signal dependencies between them influences cognitive language processing strategies.

My motivation

I am driven by curiosity to learn more about our species and especially its cognitive abilities and by the joy of testing and pushing the boundaries of knowledge. Research on language processing is an ideal field for this because only a handful of languages have been investigated in detail and there are exciting discoveries to be made with every new language that is studied.

My next professional station

Since 2016 I have held a postdoctoral position at the University of Zurich. My research continues to center around how cognition and grammar interact with each other; I work with languages from India, the Solomon Islands, and Ecuador, among others.

Human Sciences Section

Dr. rer. nat. Sofie Louise Valk

for the study of how the structure of the human cerebral cortex relates to the capacities underlying social function

Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig
Research field: social neuroscience
Current activity: postdoctoral fellow at the Jülich Research Centre and Heinrich Heine University Düsseldorf

My topic of interest

I would like to understand how the interplay between genetic and environmental factors shape inter-individual differences in (social) behaviour and brain topology. In this context, I would like to develop models on the biological basis of (social) behaviour that can be applied in clinical and educational settings in order to improve well-being.

My motivation

Every day my family, friends, colleagues, and collaborators motivate me to do sound and relevant research. I also simply enjoy having ideas and testing whether they make sense. Ultimately, I feel lucky with the opportunities I have, and want to make the most of it to help others.

My next professional station

Currently I am a postdoc at the lab of Prof. Simon Eickhoff at Jülich Research Centre and Heinrich Heine University Düsseldorf. Here I work on genetics and brain mapping. After further developing my skills, I would like to head my own research group and teach others and conduct great research.

Human Sciences Section

Dr. jur. Denise Wiedemann

for an investigation into the topic of ‘Enforceability – Development, extension of effects and qualification in the Brussels Ia system’

Max Planck Institute for Comparative and International Private Law, Hamburg
Research field: international and European private law and civil procedure, enforcement law, comparative law, arbitration law
Current activity: postdoctoral fellow at the Max Planck Institute for Comparative and International Private Law, Hamburg

My topic of interest

Civil judgements are not subject to an intermediary procedure when they are enforced in another Member State of the European Union. A creditor who, for example, has obtained a judgement in France may directly request enforcement from the enforcement officer in Germany if the debtor has assets there. In the context of cross-border enforcement, the law of the state issuing the judgement, the law of the state of enforcement and the law of the European Union converge. Departing from the historical lines of development, I examine which of these three legal regimes applies to legal institutes in German, French, English, Dutch and Spanish enforcement law.

My motivation

Comparative research is sometimes laborious and sketchy, especially if language barriers and completely different legal systems complicate the understanding of foreign law. It is even more important to duly consider the individual national laws during the unification of law in Europe. If one manages to find an adequate solution for a cross-border case, the research was worthwhile.

My next professional station

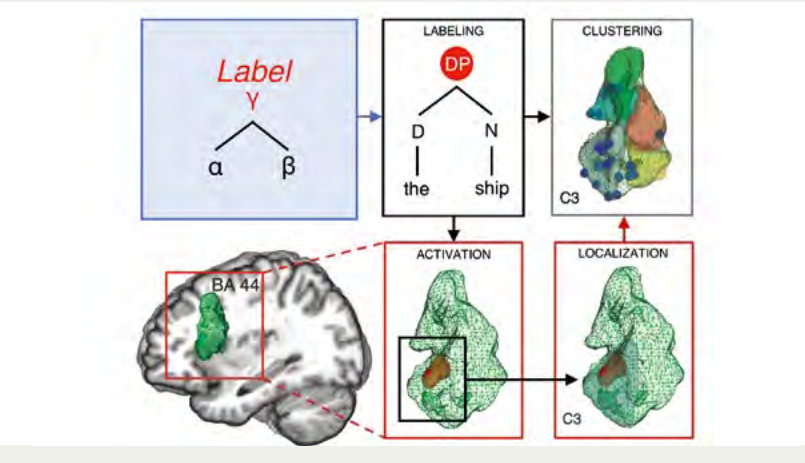
My time as a postdoc at the Max Planck Institute for Comparative and International Private Law will allow me to do research on the law of Latin-American states extensively and, especially, to contribute to the development of Bolivian and private international law.

Human Sciences Section

Dr. phil. Emiliano Zaccarella

for the discovery that the most basic syntactic computation that lies at the root of all languages is localized in a confined region in the frontal cortex

Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig
Research field: neuroscience
Current activity: postdoctoral fellow at the Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig



My topic of interest

My research focuses on the understanding of the core syntactic computation of human language within the cortex. I thus attempt to derive a unified neurobiological account of grammar knowledge covering brain maturation, development and evolution.

My motivation

I follow the intuition that while language is the most complex cognitive ability we are endowed with, its underlying simplicity can help us discover the most fundamental characteristics of human nature.

My next professional station

I will be busy working as a postdoc at the Max Planck Institute for Human Cognitive and Brain Sciences for the next couple of years, thus implementing my experimental models together with my great collaborators.

The Otto Hahn Award

The Otto Hahn Award is bestowed by the Max-Planck-Gesellschaft every year to particularly worthy recipients of the Otto Hahn Medal.

The award provides for a research residency abroad, followed by leadership of a research group on the scientist's own research topic at one of the Max Planck Institutes. The award is intended to pave the way for a scientific career in Germany.

Lise Meitner and
Otto Hahn in the laboratory,
Kaiser Wilhelm Institute
for Chemistry, 1913

This year two female scientists will be honoured with the Otto Hahn Award of the Max-Planck-Gesellschaft.

Chemistry, Physics & Technology Section

Dr. Lisa Schmöger

see page 25

Human Sciences Section

Dr. Sofie Louise Valk

see page 33

The Hermann Neuhaus Prize

Hermann Neuhaus (1931–2007) was a successful entrepreneur. Like many excellent scientists, he used his untiring creativity and critical mind to strive constantly for the best. His aim was to sustainably shape the future for generations to come. He is the most generous benefactor of the Max-Planck-Gesellschaft and posthumously received the Harnack Medal, its highest accolade.

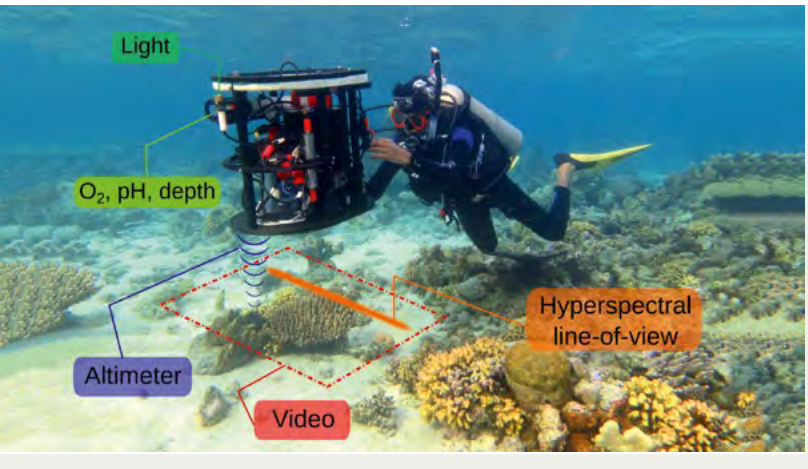
In 2018, the Max Planck Foundation and the Hermann Neuhaus Foundation launch the Hermann Neuhaus Prize in his memory. The prize recognises outstanding postdoctoral achievements with reference to applied research, particularly in the Biology & Medicine Section and the Chemistry, Physics & Technology Section.

In accordance with the benefactor's last will, the prize money enables the winners to further advance their research's potential for application.

Dr. rer. nat. Arjun Chennu

for his outstanding work at the interface between basic research and practical application in the field of mapping marine habitats and the analysis of biological diversity

Max Planck Institute for Marine Microbiology, Bremen
Research field: marine biology, biogeochemistry
Current activity: research scientist at the Max Planck Institute for Marine Microbiology, Bremen



My topic of interest	I'm interested in learning about the interrelationships between the structure and function of marine habitats. By developing techniques to study ecosystems without disturbing them, we could have the chance to understand their integrated behaviour over larger scales.
My motivation	I cherish the possibility to design and build instrument systems, take them out on field expeditions and construct interesting stories of ecosystem function. Another important aspect is the interdisciplinarity: study of microbial ecology requires equal parts of physics, chemistry and biology in a dynamic framework.
My next professional station	I am employed as a research scientist in the Microsensor group of the Max Planck Institute for Marine Microbiology. I plan to continue engineering our studies of marine ecology through collaborative projects.

The Reimar Lüst Fellowship

The Reimar Lüst Fellowship is financed by a foundation that was created in 1983 to mark the 60th birthday of Reimar Lüst, a former president of the Max-Planck-Gesellschaft.

The foundation's endowment consists of donations from German companies. The foundation fosters junior scientists via the two-year Reimar Lüst Fellowship, which is awarded annually.

The former and the current president: Reimar Lüst and Martin Stratmann at the Annual Meeting of the Max-Planck-Gesellschaft in 2014

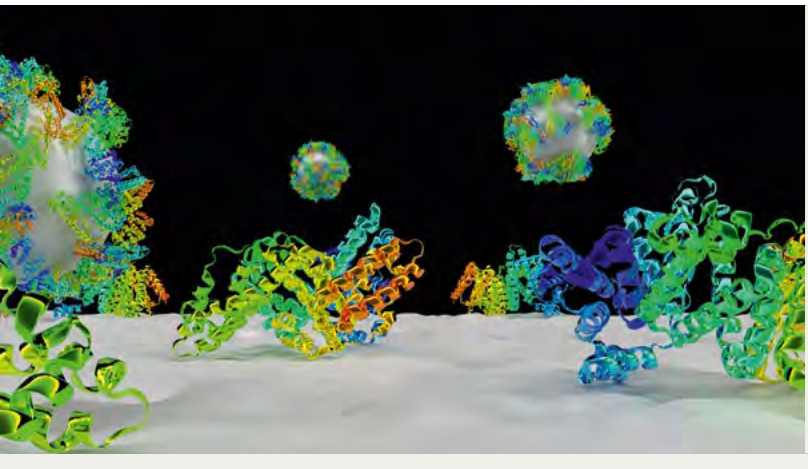
Johanna Simon

for her work on the translation of polymer nanocarriers into clinical application for the treatment of melanoma

Max Planck Institute for Polymer Research, Mainz

Research field: nanoparticle protein interactions

Current activity: PhD student at the Max Planck Institute for Polymer Research, Mainz



My topic of interest	Nanoparticles are promising candidates for biomedical application, as they should allow the selective transport of therapeutics to the targeted site of interest. Despite the great effort in the synthesis of novel nanoparticle formulation, there is still a low number of clinically applied systems. This is mainly based on the limited understanding of the biological interactions occurring after nanoparticles are applied intravenously. Therefore, my work aims to investigate the multiple interactions between nanoparticles and blood components.
My motivation	Once nanoparticles are exposed to a biological milieu, blood components rapidly interact with the nanoparticles´ surface. This process determines the further biological fate of any nanoparticle. Therefore, I am fascinated about the principal mechanisms involved in the complex interactions between nanoparticles and blood proteins. With this, I aim to improve the properties of nanoparticles for their successful application as therapeutics.
My next professional station	After my PhD, I would like to continue my work as a post-doctoral fellow at the Max Planck Institute for Polymer Research in Mainz.

The Dieter Rampacher Prize

As a motivation for students to complete a PhD when young, the Dieter Rampacher Prize has been awarded to the youngest PhD student of the Max-Planck-Gesellschaft every year since 1985. The prize usually goes to a young researcher aged 25 to 27. The prize also includes a monetary award.

The prize was endowed by Dr. Hermann Rampacher, a Supporting Member of the Max-Planck-Gesellschaft, in memory of his brother, Dieter Rampacher, a physics student at the TH Stuttgart, who died in battle in 1945 at the age of 20.

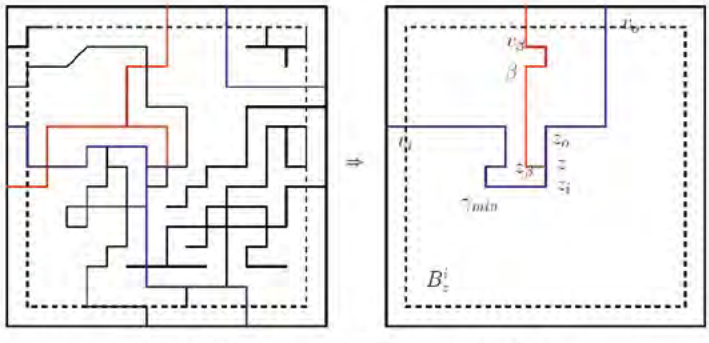
Carsten A. Rampacher, son of the benefactor whose management consultancy is also a Supporting Member of the Max-Planck-Gesellschaft, has assumed funding of the prize since 2011.

Herrmann Rampacher talking with Chaitanya Giri, winner of the Dieter Rampacher Prize 2015

Dr. rer. nat. Deepan Basu

Dissertation: ‘Generalizations and Interpretations of Incipient Infinite Cluster Measure on Planar Lattices and Slabs’

Max Planck Institute for Mathematics in the Sciences, Leipzig
Research field: discrete probability theory
Current activity: postdoctoral fellow at the Indian Statistical Institute, Kolkata, India



Local Modification: Joining open paths at criticality in Slabs

My topic of interest	Percolation has a well-established origin in applied mathematics, it has fascinated statistical physicists and mathematicians alike for being a rich source of open problems. It was established as a mathematical object more than seventy years ago but quite a few basic questions, specifically regarding the continuity of the phase transition, still remain surprisingly difficult to answer. I would love to make some progress in that direction.
My motivation	Like most fellow researchers, I derive great joy from understanding a subject deeply. The moment of finally solving a problem after toiling for a long time is incredibly rewarding. These two aspects, coupled with the importance of this topic to applied mathematicians and physicists, keep me motivated.
My next professional station	I am currently INSPIRE fellow at ISI Kolkata in India, and in all likelihood will stay here for a couple of years or so.

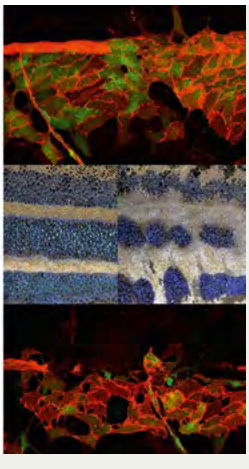
The Nobel Laureate Fellowship

The Nobel Laureates of the Max-Planck-Gesellschaft can each nominate an outstanding postdoc for a Nobel Laureate Fellowship in recognition of their achievements. The fellows receive an employment contract at a Max Planck Institute as well as resources for research. This instrument for promoting junior scientists of the Max-Planck-Gesellschaft provides postdocs with a unique insight into the research activitiesof the Nobel Laureates. They also benefit from excellent national and international networks for their future career.

Dr. rer. nat. Anastasia Eskova

Nobel Laureate:
Prof. Christiane Nüsslein-Volhard

Max Planck Institute for Developmental Biology, Tübingen
Research field: developmental biology
Current activity: postdoctoral fellow at the Max Planck Institute for Developmental Biology, Tübingen

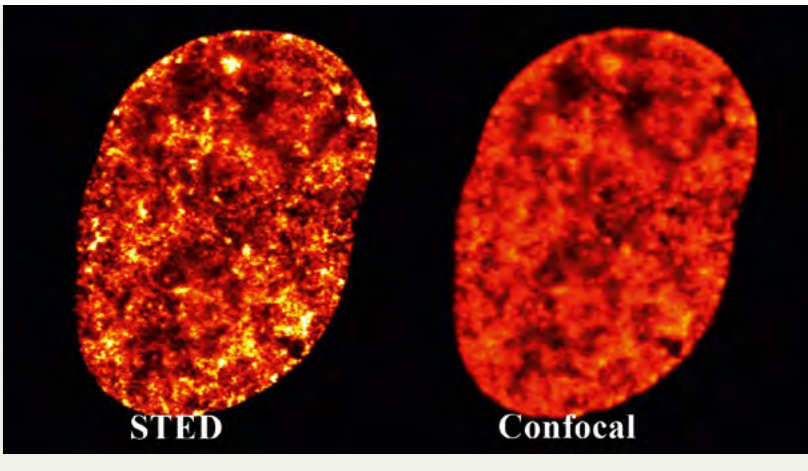


My topic of interest	How do interactions of pigment cells drive them to form colour stripes on zebrafish skin?
My motivation	In order to form complex multicellular organisms, individual cells have to communicate and influence each other's behaviour. Aside from being beautiful, skin colour patterns of animals are a great model to study how the cells get together in response to internal and external cues to form large-scale patterns.
My next professional station	For the time being I am staying in Tübingen, but in future I would like to go abroad for further training in genome and transcriptome analysis.

Dr. Jonas Bucevicius

Nobel Laureate:
Prof. Dr. Stefan W. Hell

Max Planck Institute for Biophysical Chemistry, Göttingen
Research field: organic chemistry
Current activity: postdoctoral fellow at the Max Planck Institute for Biophysical Chemistry, Göttingen



My topic of interest	My research aims at the design and synthesis of new or improved fluorogenic probes compatible with super-resolution microscopy techniques for the imaging of bio-molecules in living cells. Examination of the structure-property relationship of complex fluorescent molecules and design of new ligands and dyes is the key to a live-cell visualization toolbox for molecular biologists, neurobiol-ogists and biochemists.
My motivation	I am fascinated by fluorescence as a molecular phe-nomenon in which a substance radiates light almost instantaneously upon being struck with light from another source. This phenomenon can be applied in many fields of science, however probably the most fundamentally valua-ble and the fastest growing field is fluorescence nanoscopy, which allows the observation of many biological structures not resolvable in conventional fluorescence microscopy. Development of new fluorescent dyes, probes or sensors might contribute to many fields of life sciences and deepen our fundamental understanding of life on the smallest scale.
My next professional station	As my research has just started, I'm concentrating on the ongoing research on the new fluorescent probes at the Max Planck Institute for Biophysical Chemistry which offers an excellent environment and infrastructure.

Dr. Nicolas N. Duprey, PhD

Nobel Laureate:
Prof. Dr. Paul Crutzen

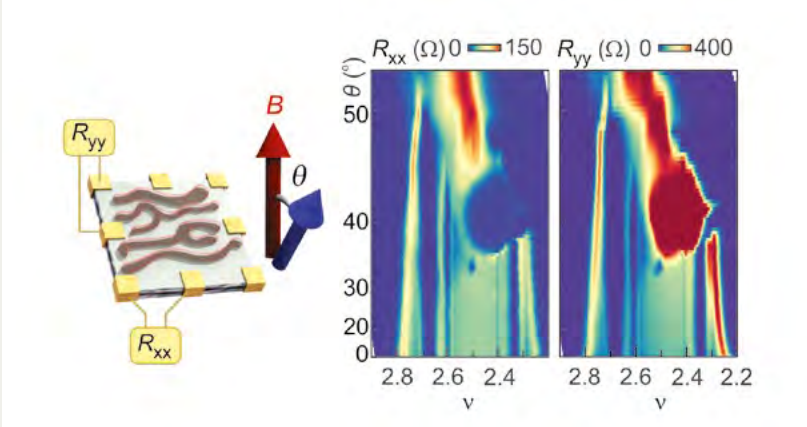
Max Planck Institute for Chemistry, Mainz
Research field: paleoclimatology, paleoceanography
Current activity: postdoctoral fellow at the Max Planck Institute for Chemistry, Mainz

My topic of interest	Anthropogenic activities are altering the global nitrogen (N) cycle with negative consequences on the world's oceans. Coral reefs are particularly sensitive to this problem and provide thus an interesting observatory to study the anthropogenic N footprint in the ocean. Through my research I would like to answer the following questions: What is the spatial and the temporal extent of the anthropogenic N footprint on coral reefs worldwide? How does climate modulate natural and anthropogenic N sources in the tropical ocean? What are the potential climate feedback mechanisms linked to the N cycle in tropical oceans?
My motivation	I am fascinated (and concerned) by the evolution of planet Earth in the Anthropocene. In this 'real time experiment', there is, so far, no clear answer about how the future will look. Many questions are thus arising. The nitrogen cycling in the ocean, for instance, influences the global climate but also controls the fate of many ecosystems upon which millions of human lives rely. The global challenges linked to this topic are a major motivation in my research. The excellent working environment provided by the Max Planck Institute for Chemistry is also a great source of motivation.
My next professional station	After several years of postdoctoral research, I will now consider targeting a group leader position to pursue my research.

Dr. phil. Joseph Falson

Nobel Laureate:
Prof. Dr. Klaus von Klitzing

Max Planck Institute for Solid State Research, Stuttgart
Research field: solid state physics
Current activity: postdoctoral fellow at the Max Planck Institute for Solid State Research, Stuttgart



My topic of interest	The behaviour of electrons at very low temperature and high magnetic field is emergent; it is very difficult to predict the nature of their interactions by considering only the constituent ingredients. I experimentally study exotic and unpredicted electron phases in extreme environments and ultra-pure materials to unveil new facets of quantum mechanics and correlated electron physics.
My motivation	Curiosity at its purest. It is possible to really touch the quantum world through our laboratory equipment and observe its beauty and complexity. These phenomena are usually obscured in traditional electronics but are observable if an appropriate experimental procedure is able to be performed.
My next professional station	I hope to set up a laboratory for exploring new quantum materials with the goal of developing future high-performance electronics.

Imprint

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